

Using the Health Service Econometric Manpower Model (HSEMM) to
Predict Costs/Savings for Selected Specialty Providers

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13. ABSTRACT (Maximum 200 words) THIS PROJECT EMPLOYES THE HEALTH SERVICES ECONOMETRIC MANPOWER MODEL (HSEMM) TO CONDUCT ECONOMIC ANALYSIS. IT USES THE HSEMM TO PREDICT THE OVERALL CHANGE IN COST WHEN A MILITARY AUDIOLOGIST, OPTOMETRIST, OR SOCIAL WORKER ARE REPLACED WITH: 1. A CIVILIAN (GS EMPLOYEE) OF THE SAME SPECIALTY. 2. A CONTRACTOR OF THE SAME SPECIALTY. 3. OUTSOURCING THE SERVICE TO TRICARE. THE RESULTS INDICATE THAT MILITARY OPTOMETRISTS SHOULD BE REPLACED WITH A CONTRACT OPTOMETRY OPTION. MILITARY AUDIOLOGISTS AND SOCIAL WORKERS SHOULD NOT BE REPLACED WITH A CIVILIAN ALTERNATIVE.			
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Abstract

The Army Medical Department (AMEDD) uses the DoD Sizing Model to determine the appropriate number of soldiers in each medical specialty needed to meet the AMEDD's readiness requirements. These numbers are based on several factors that include war time, operational, and sustainment requirements. Any additional active duty authorizations for these specialties must be justified economically and are subject to make/buy analysis. This project employs the Health Services Econometric Manpower Model (HSEMM) to conduct that economic analysis. It uses the HSEMM to predict the overall change in cost when a military audiologist, optometrist, or social worker are replaced with:

1. A civilian (GS employee) of the same specialty.
2. A contractor of the same specialty
3. Outsourcing the service to TRICARE.

The results indicate that military optometrists should be replaced with a contract optometry option. Military audiologists and social workers should not be replaced with a civilian alternative.

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Introduction.

Conditions which prompted the study. The Army Medical Department (AMEDD) uses the DoD Sizing Model to determine the appropriate number of soldiers in each medical specialty needed to meet the AMEDD's readiness requirements. These numbers are based on several factors that include war time, operational, and sustainment requirements (see Table 1). Any additional active duty authorizations for these specialties must be justified economically and are subject to make/buy analysis in the event that the AMEDD is tasked to reduce to manpower levels lower than the current structure. Reasons to maintain slots above current go to war mission requirements include: the need to provide a training base for other specialties, the need to provide clinicians that are part of the Army culture, the need to provide quality clinicians in areas where none are available in the local market, and the need to provide a quality continuum of care to our beneficiaries at the lowest cost to our tax payers.

Table 1

Make/Buy Model for Audiology, Optometry, and Social Work

	Wartime	Operational	Sustainment	Total	Make/Buy
Audiology	8	6	3	17	22
Optometry	45	18	12	75	60
Social Work	64	24	12	100	53

(Peterson, 1997)

Providing quality health care to our beneficiaries remains a tremendous challenge. While the Army may be downsizing, and reducing the number of active duty

beneficiaries that our smaller AMEDD will serve, a substantial beneficiary population remains. In fact, the non-active duty population is actually growing. It was predicted that by 2002 we will have more retired beneficiaries (1.5 million) to serve than active duty (1.48 million). However, we have already reached that point (Cyr, personal communication, 24 February, 1998). It is therefore essential that the AMEDD force mix that remains not only be able to ensure a successful go to war component but also be the most efficient choice for meeting this growing health care mission. The cost of clinicians becomes an important factor in determining an efficient force mix.

The actual cost of "soldier clinicians", and how this cost compares to civilian alternatives, however, remains unclear. It is important for planners to gain clear insight into the entire spectrum of costs for all clinician alternatives before determining which is the most cost effective choice. To improve the understanding of these costs, we developed the Health Services Econometric Manpower Model (HSEMM).

Statement of the Problem This project will use the HSEMM to identify the most cost efficient health care provider option to furnish the make/buy portion of our military audiologists, optometrists, and social workers.

Literature Review

As managed care evolved, the importance of attributing costs to their cost centers became more important to the health care industry (Upda, 1996). Many sources suggest the use of activity-based costing to gain a better understanding of each service's costs within the facility. Chan (1993) discusses combining activity based costing methods with traditional costing procedures to improve planning and the control of costs for the facility. Upda (1996) applies activity based costing to traditional hospital procedures

(patient-activity systems, case management, etc.) to improve their economic efficiency. Stiles et al.(1997) took the use of activity-based costing further and used it as a tool to help measure the impact of cost on quality.

The MHS has recognized the need to use activity-based costing (Holmes, 1996) and has incorporated it in its Medical Expense and Performance Reporting System (MEPRS) (Assistant Secretary of Defense for Health Affairs, 1995). Wagner (1997) used costing methods to gain a better understanding of the total cost for emergency services at William Beaumont Army Medical Center.

Other studies have also looked at cost to understand additional aspects of hospital operations. Woolhandler & Himmelstein (1997) compared the administrative costs of for-profit and not-for-profit hospitals between 1990 and 1994. They found that administrative costs have increased as a percentage of total hospital costs during this period. Administrative and total costs were higher at for-profit hospitals.

Adrianos & Dykan (1996) discussed a project at the Virginia Mason Medical Center that educated physicians on costing data to facilitate clinical care improvement projects. They were able to reduce overall procedure costs and length of stay by educating their clinicians on the cost reporting data.

Additionally, as the AMEDD continued to look at its service costs, it became necessary to address specifically the life-cycle costs of retaining active duty providers. The Headquarters, Army Medical Command, Program, Analysis, & Evaluation Directorate is the agent for making the assessments and has done several studies on the life-cycle costs of AMEDD personnel (Howes, 1996; Vector,1995). Vector (1995) focused on the actual costs incurred by the military for its medical training for clinicians.

The focus of this study was to compare the costs of this training to civilian training alternatives. The life-cycle cost study focused on comparing the salary and benefits costs of maintaining a clinician on active duty status for an entire career to the life-cycle costs of hiring a civilian or contract clinician alternative (Howes, 1996).

As studies of health care cost accounting became more sophisticated, they began to look at the relationship between cost and other variables. O'Keefe & Hochstein (1994) compared dental expenditures to the variables of dentist/population ratio, per capita personal disposable income, and percentage of the population with insurance. The study found an increase in dental expenditure in Quebec from 1962-1991 and that all three independent variables had a positive effect on dental expenditure.

O'Neill & Largey (1997) found that the average cost per day of neonatal patients was directly affected by the costing model used. They caution decision makers to examine carefully the costing model used by a facility before implementing policy.

Economic models have become a popular form of studying health care because they can incorporate a wide variety of variables. Proper (1993) used a cell based model to "analyze the effects of demographic change on the level and distribution of public expenditure" (p. 149). Kenkel (1995) studied the impact of lifestyles for adult health. Goddard, Malek, & Tavakoli (1995) used an economic model where patients were able to select from the options of private treatment, National Health Service treatment and no hospital treatment for waiting list conditions. Erbsland, Ried, & Ulrich (1995) used a Grossman-style health model to look at the impact of pollution on the demand for health care. All of these models illustrate the advantage of applying statistical analysis to known variables in order to gain a greater understanding of their relationship.

While there were many studies that looked at costs, and other studies that modeled aspects of health care demand behaviors, no study could be found that modeled health care costs based upon demand behaviors. Additionally, no literature could be found that predicted specifically the costs of audiology, optometry or social work services.

Econometric models that study a variable's effect on cost, however, are generally based on the economic principle that quantity demanded is a function of price (Pindyck & Rubinfeld, 1991). While this economic principle is usually true when applied in the civilian health care industry, health care services in the MHS are a benefit, and therefore essentially free to the consumer. The economic principle that must be applied to military health care economics is then that cost is a function of quantity demanded and provided. The cost of care to the MHS is based on the quantity of care demanded by its beneficiaries, and provided by military, civilian, and contract personnel.

Administrators in the military health care industry often attempt to predict their costs based on what they know of past demand. For example, if they plan to replace military clinicians with civilian clinicians, most military planners just apply the costs of civilian care to the current known demand for care.

What this does not take in to consideration is the consumer's decrease in demand for health services when he perceives an increase in his personal cost. Military health care models that replace military clinicians with CHAMPUS services often fail to account for the reduction in demand caused by the co-payment. The RAND Corporation (Newhouse, 1993) found that when a co-payment was applied, there was a significant reduction in the use of health care services.

The HSEMM

The HSEMM is a decision support model that compares the predicted costs of the different provider options available to health care planners. It uses an unbiased Two-Stage Least Squares methodology and historical AMEDD cost data to develop its predictions. The HSEMM predicts the change in costs for a facility and/or the CONUS AMEDD in its totality when a military clinician is replaced:

1. By a civilian clinician working in the facility.
2. By a contract clinician working in the facility.
3. By the beneficiaries being sent out of the facility to receive their care under the local TRICARE option.

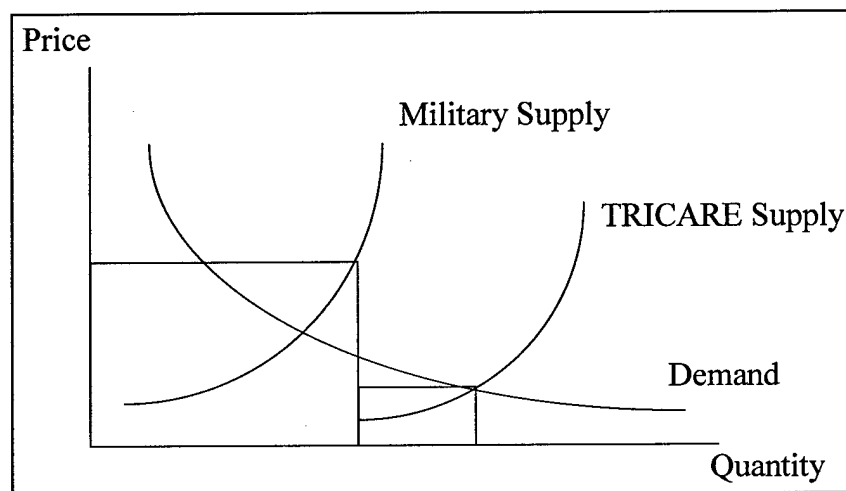
There are several advantages to the HSEMM when compared with the less sophisticated models in current use. The first advantage is that it uses a more advanced statistical analysis than most models. Most models use descriptive statistics based on historical data for one or a few facilities (Howes, 1996; Wagner, 1997). The HSEMM applies a two-stage least squares regression to all historical data available from the 29 selected CONUS facilities. This analysis is then used not to describe past outcomes but to help predict future ones (Perry, 1997).

The HSEMM also uses more data than most models. Most models attempt to simply quantify the cost of the provider either through an assessment based on provider costs (life-cycle costing)(Howes,1996) or on total service costs (activity based costing) (Chan, 1993; Stiles & Mick, 1997; Upda, 1996). The HSEMM looks at the cost of the provider, the costs of having that service in the facility, and the behavior patterns of users of the facility compared to their civilian and contract counterparts.

Additionally, the HSEMM addresses health care economics from the perspective of the Military Health System (MHS) as opposed to the civilian industry. Aspects of how care is delivered in the military sector make it uniquely different from its civilian counterpart.

Figure 1 illustrates this difference and its impact on military health care economics. The horizontal axis represents the quantity of care provided or used. The vertical axis depicts the average cost or price of care. The downward sloping curve represents the actual demand for care in the system. The consumers of military health care perceive their benefit as either “free” or a “sunk cost” of their service benefit. Since any increase in the price of care is paid by the facility, and not the consumer, an increase in facility cost does not effect their demand. The first upward sloping curve represents the facility’s supply of care. The second curve is the supply of care within our commercial (TRICARE or CHAMPUS) system. The second curve is pertinent only where it reflects the care supplied to meet demand not met by the military system. The large rectangle is the budget for military care, while the small rectangle reflects the beneficiary’s cost for additional care obtained outside the military system. As military care (the large rectangle) decreases (in response to reductions in budget, personnel or efficiency), beneficiary cost (the small rectangle) increases as those services are sought outside and beneficiaries pay additional costs in co-payments. The rectangles, however, do not shift proportionally. As the cost of care (such as co-payments) increases for the beneficiary, their demand adjusts accordingly (Perry, 1998).

Figure 1

Military Health Care Economic Graph

(Perry, 1998)

What this captures, compared to other models, is a behavior first identified in the Health Insurance Experiment by the RAND Corporation (Newhouse, 1993), that consumers use less health care when they perceive that they have a greater cost. CHAMPUS/TRICARE provider options often increase the cost to the beneficiary and may, therefore, create this change in behavior. This subtle aspect of beneficiary behavior and its effect on cost is one of the most intriguing aspects of this model.

Purpose The purpose of this study is to use the HSEMM to predict the provider option for audiology, optometry, and social work that will cost the AMEDD the least. Those results will then be analyzed to recommend future manpower requirements to the AMEDD leadership.

Methods and Procedures

Data Used All data obtained for audiology, optometry, and social work was for outpatient services.

1996 data from Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) information system was used in order to establish the FY 1996 costs and workload of CHAMPUS. CHAMPUS data is submitted by beneficiaries seeking reimbursement for outsourced care. The data are collected by fiscal intermediaries (FIs) and managed care support (MCS) contractors who enter it using manual, semi-automated, and automated systems. This data can then be retrieved using the Retrospective Case-Mix Analysis System (RCMAS) or Resource Analysis and Planning System (RAPS) (VRI,1996). RCMAS was used to retrieve the data for this study. RCMAS was also used to retrieve all user data.

The cost and workload data for CONUS Military Treatment Facilities (MTFs) was obtained from the Medical Expense and Performance Reporting System (MEPRS). All AMEDD MTFs use the same coding and reporting systems. Direct, ancillary, support, and cost pool expenses are reported on the Direct Expense Schedule using appropriate stepdown processes and assignments. The military salaries captured in the direct expenses are computed using the DoD Annual Composite Standard Rates Table for pay grade and specialty. The civilian salaries are recorded based on the DoD Civilian Composite Pay Scale. Work-hour utilization for all MTF personnel is recorded using the Uniform Chart of Accounts Personnel Utilization System (UCAPERS). Workload data

(for outpatient) is based on clinic visits and is obtained from the Composite Health Care System. (VRI,1996).

Population data for each MTF catchment area was obtained using the Defense Enrollment Eligibility Reporting System (DEERS). Beneficiaries are enrolled in DEERS by the personnel system. The personnel system tracks active duty beneficiaries. Retired beneficiaries are tracked using the annuity pay system and family members are entered through the DD Form 1172. DEERS is then used to obtain specific eligibility information and broad demographic data. (VRI,1996)

Variables Studied 22 variables were entered into each HSEMM model for each of the selected CONUS MTFs. The cost variables were the direct, ancillary, and overhead costs reported by each of the 29 CONUS MTFs in 1996 by MEPRS, and the CHAMPUS costs reported by each of these MTFs in 1996 by the CHAMPUS information system. This data was reported separately for each of the three services: audiology, optometry, and social work.

The workload variables were the number of MTF and CHAMPUS outpatient visits reported for each of the 29 catchment areas for each of the three services.

The full-time equivalent (FTE) variables included the number of enlisted, officer, civilian, and contract FTEs reported in 1996 by each of the 29 CONUS MTFs.

Several regressions were run initially on the population data in order to determine which categories had the strongest predictive value. The population variables were broken down into twelve specific categories: total population, officer family member, female active duty, active duty, age four and below, ages 5-14, ages 15-17, ages 18-24,

ages 25-34, ages 35-44, ages 45-64 and 65 and over. These categories were then recorded into the HSEMM for each CONUS MTF catchment area.

The final variable used was whether or not each MTF's catchment area was overlapped by another. This information was recorded as a binary variable in the model.

(see Tab 1, Status Quo)

Validity and Reliability

Face Validity. Nachmias & Nachmias (1981) define face validity as "the investigator's subjective evaluation as to the validity of a measuring instrument...it concerns the extent to which it measures what it appears to measure" (p.141). The historical data available on the MHS legacy systems was the sole source for the data of this project. While there is ample opportunity for error in the compilation of this data, and frequent variation in data entries at the source, it is this investigator's opinion that there has been substantial improvement in entry in recent years and that these systems currently provide the best source available.

Sampling validity. While this model accepts the data from the majority of facilities currently in the Army system, it uses data from only one year (1996). The degree to which predictions of the future will be valid then, rests on how well 1996 reflects general cost and user behaviors of the MHS.

Reliability. Entry of the data was checked 6 times during separate iterations of the evolution of the HSEMM model. While variations and errors were found during the first four iterations, corrections were made and no subsequent variation was noted in the final two.

Method and Procedures Each of these variables was then totaled for all of the MTFs and averaged. Each individual MTF's entry was then subtracted from this average and re-entered to reduce error bias during the regressions. A series of five first stage regressions and three second stage regressions was then applied to the variables for each specialty.

The five first stage regressions were used to determine the relationships of the predictor variables to: CHAMPUS volume, MEPRS volume, CHAMPUS costs, direct MEPRS costs, and ancillary MEPRS costs. Each of these five first stage regressions used the population variables, the overlap variable, and the FTE variables as their independent variables. CHAMPUS volume used the number of reported CHAMPUS visits as its dependent variable. This regression gave us our estimated CHAMPUS quantity coefficients. The number of reported MEPRS visits was the dependent variable for MEPRS volume. From this regression we obtained our estimated MEPRS quantity coefficient. The CHAMPUS costs for each MTF catchment area served as the dependent variable for the CHAMPUS cost regression, which in turn provided the estimated CHAMPUS costs coefficient. Finally, the reported direct MEPRS costs and ancillary MEPRS costs were the dependent variables for the direct cost and ancillary cost regressions respectively. These in turn provided the estimated direct and ancillary MEPRS costs.

The second stage regressions used the predictions from the first stage regressions as independent variables to predict CHAMPUS costs, direct MEPRS costs, and ancillary MEPRS costs. The CHAMPUS cost regression used the predictions from estimated CHAMPUS quantity, estimated MEPRS quantity, and estimated direct and ancillary

MEPRS costs as its independent variables. CHAMPUS costs remained the dependent variable. The direct MEPRS costs regression uses the estimated ancillary MEPRS costs, estimated CHAMPUS costs, and estimated CHAMPUS and MEPRS quantities as its independent variables. Direct MEPRS costs are the dependent variable. Ancillary MEPRS costs uses the estimated direct MEPRS and CHAMPUS costs and the estimated MEPRS and CHAMPUS quantities as its independent variables. Ancillary MEPRS costs are, of course, the dependent variable.

The results of the three second stage regressions are then used to predict the total estimated costs of the status quo.

Each of the three provider alternatives is then applied separately using the HSEMM model. In alternative one, the officer FTEs are replaced by civilian FTEs and the model is applied accordingly. The results then reflect the overall predicted change in expected costs per MTF on the results page. In alternative two, the officer FTEs are replaced with contract FTEs and the model is again applied. Alternative two results reflect the change in expected costs. In alternative three the officer FTEs are replaced with CHAMPUS care. Alternative three results reflect the change in expected costs for this option.

Findings

Audiology The R Squares for the five first stage regressions for audiology ranged from .9 to .96. The R Squares for the three second stage regressions ranged from .73 to .88 (see Table 2). Each of these highlights the strong predictive nature of this data.

Optometry The R Squares of the five first stage regressions ranged from .84 to .97. The second stage regression R Squares ranged from .09 to .79 (see Table 2).

Social Work The five first stage regressions had R Squares from .87 to .98. The second stage regressions had an R Square from .24 to .87 (see Table 2).

Table 2

RSquares for the regressions of audiology, optometry, and social work variables.

Regression	Audiology	Optometry	Soc. Work
1	.90	.84	.89
2	.91	.86	.98
3	.91	.85	.87
4	.93	.93	.94
5	.96	.97	.88
6	.88	.79	.86
7	.73	.60	.87
8	.75	.09	.24

Savings

While results varied in magnitude between MTF catchment areas, each MTF showed a similar loss or savings for each of the three alternatives. The change in overall costs in audiology ranged from a potential increase in cost of \$10 million to a predicted savings of \$3.9 million. It is important to note however, that all audiology contract data came from contracts in the Washington, DC area and the model may predict contract costs in excess of a normal national average. The change in cost for optometry service ranged from an increase in cost of \$357,000 to a savings of \$2.3 million. Changing the provider mix of social work is predicted to create a change in costs ranging from an

increase of \$2 million to a savings of \$1.7 million (see Table 3). Using civilian social workers would result in an estimated loss to the government of \$2 million. Replacing military social workers with contract social workers would result in an estimated savings of \$1.7 million. Outsourcing to TRICARE would save an estimated \$276,000.

Additionally, all of these losses and savings were shown to be significant at the 95% confidence level except for Social Work TRICARE savings. Table 3 lists the confidence levels for each specialty.

Table 3

Change in overall cost for provider alternatives.

Alternative	Audiology	Optometry	Social Work
Civilian	\$2 million increase	\$357K increase	\$2 million increase
Contract	\$10 million increase	\$1 million savings	\$1.7 million savings
TRICARE	\$3.9 million savings	\$2.3 million savings	\$276K savings
95% Confidence	+/- \$250K	+/- \$308K	+/- \$420K

These savings, however, reflect the total savings possible if all members of a specialty were to be replaced with provider alternatives. Since there are readiness requirements for many of these clinicians, Table 4 illustrates the percentage of saving that could be earned by replacing only the make/buy portion. The total savings gained by replacing only the make/buy portion with its most cost effective alternative is \$3.2 million.

Table 4

Savings gained by Make/Buy portion only.

	Audiology	Optometry	Social Work
Civilian	\$1.1million increase	\$157K increase	\$700K increase
Contract	\$5.6million increase	\$440K savings	\$595K savings
TRICARE	\$2.2 million savings	\$101K savings	\$97K savings

Analysis

The two previous tables addressed the clinician alternatives from a pure total savings perspective. Deeper analysis of the model results allow one to see these savings from a very different light. For example, the savings associated with the TRICARE alternative not only reflects a decrease in the quantity of care provided but, in the cases of optometry and social work, there is also an increase in per unit cost for service when compared with the status quo. Essentially, while saving, we are getting less for more.

Tables 5,6, and 7 allow us to look at the results and compare their efficiency. If we assume that all workload performed is necessary, then the option that we want to select is the option that provides the greatest quantity of health care at the lowest cost. These results differ significantly from a comparison of the options from a pure total savings basis.

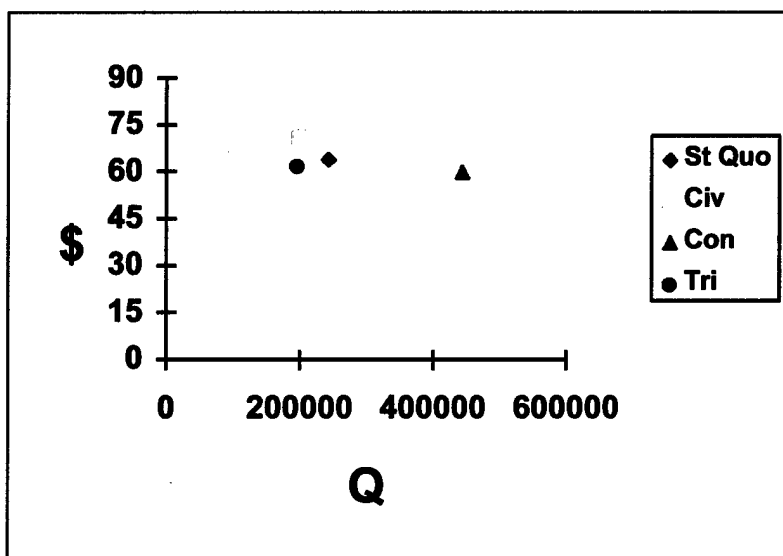
The x axis in each of these tables reflects the predicted quantity for each provider option. The y axis is the average predicted cost per service. The four points reflect the intersection of cost and quantity for the status quo, civilian, contract and TRICARE

options. If the desired goal is the greatest quantity of care for the least cost, the best option would be the option to the furthest right and lowest portion of the graph.

While the contract option is predicted to provide an increase in cost for audiology services over the status quo, the graph shows it as the best option. Although it is predicted to result in an overall increase in the cost of care, the graph shows that it is actually providing a great deal more care than any other option at a substantially lower average cost (see Figure 2). It is predicted to provide more than twice the care predicted of the TRICARE option at an average price of \$2 less. If excessive utilization is a problem, this alternative could be modified to replace military FTEs on a less than one for one basis.

Figure 2

Analysis of clinician options for audiology.

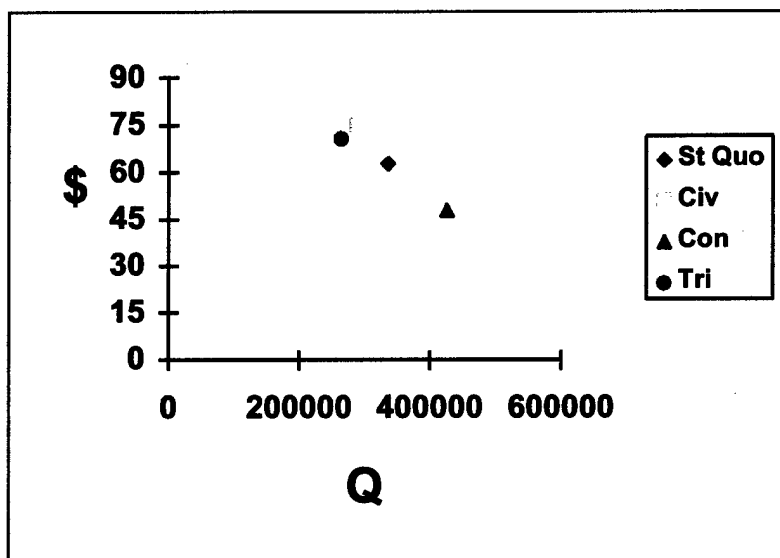


One would also choose the TRICARE option in order to save money in Optometry services if Figure 3 were not examined. Figure 3 shows that TRICARE achieves that savings by reducing the optometry workload by more than 20%. TRICARE actually costs substantially more than the contract option. Selecting the contract option provides not only a total cost savings to the MHS but also a per unit cost savings as well.

The behaviors and savings associated with optometry are likely to be affected by the new optometry TRICARE benefit which does not require a co-payment. Additional study of this specialty is required when 1997 data become available.

Figure 3

Analysis of clinician options for optometry.

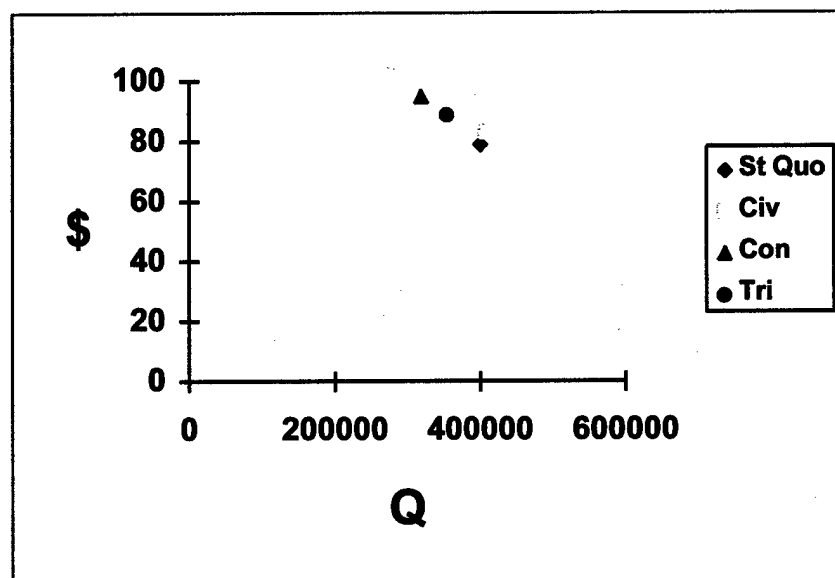


Again, social work options differ greatly when compared. Total savings would indicate that the contract option should be selected. Figure 4 shows that the contract

option costs more per unit than any other option. Of the three alternatives, the civilian choice is the most efficient. Remaining with the status quo, however, reflects the best cost/workload ratio.

Figure 4

Analysis of clinician options for social work service.



Recommendations

It is important to note at this point that cost is not the only factor that decision makers should consider. Issues of quality and access are also key. The saying "you get what you pay for" applies in health care as well as anywhere else. The lowest cost may not offer the best care. It is important to look at the quality of the options in each local market before any decision is made based on this project's analysis.

Access is important from many perspectives. There are facilities in such austere locations that finding a provider in their local market may prove more difficult or costly

than this project would reflect. Additionally, the savings reflected by many of these options is actually gained by a reduction in access.

It is also important to note that, in general, our Army's leaders have a negative opinion of our beneficiaries being required to make co-payments.

If the AMEDD selected the most cost effective course of action for each of these services to replace the make/buy portion, it could result in a potential savings of approximately \$3.8 million. Although a substantial amount of money, it is important to place this savings in an appropriate perspective. The preponderance of this savings has been gained by reducing the quantity of health care provided and shifting a portion of our costs to the beneficiaries.

Selecting the most efficient provider option results in an increase cost of more than \$5.8 million. While this option would provide substantially more health care to our beneficiaries, the goal of the MHS at this time (and of this project) is not to increase costs.

Audiology

Recommend that military audiologists be retained. The TRICARE option, while predicting a savings, reflects an over 20% decrease in patient workload. The Army places great emphasis on protecting not only the present health, but the future health of its soldiers and families. In particular, the increased efforts by the MHS to improve hearing conservation initiatives and reduce hearing loss indicate the importance the military places on auditory health. A reduction of workload this great is likely to have a negative impact on the health of the beneficiaries.

Neither the civilian option nor the contract option offers a savings to the MHS. The civilian option predicts an increase in cost and a decrease in quantity while the contract option reflects a decrease in cost but a substantial increase in quantity. If the facility administrator does not expect the quantity of workload to increase at his/her facility (can control the contractor's workload, etc.), the contract option is feasible and might provide a reduction in savings at that facility. The contract option does predict the lowest average cost per unit for this specialty.

Optometry

Recommend that military optometrists above those justified by the DOD sizing model be replaced with contract optometrists. Again, while the TRICARE option predicts the largest total savings, it also predicts a reduced workload. One objective of a pro-active managed care environment is prevention. A robust optometry service assists in those prevention measures, a reduction in service does not. My personal experience is that beneficiaries are willing to wait over a year for optometry service rather than pay a co-payment. This behavior reflects a poor prevention posture.

Contract optometrists, however, are predicted to provide more care for less and with a total savings. This option is win/win for a health care administrator. The preponderance of the contract data for the optometry model came from fairly rural areas (such as Redstone Arsenal, Ft Campbell, Ft Riley). Administrators should use caution when anticipating a like savings in a more competitive workforce market.

Social Work

Recommend that military social workers be retained. Contract and TRICARE providers, while they offer a substantial total savings, achieve this through a 20%

reduction in workload. The MHS prides itself on balancing cost, quality and access and a reduction of services to this degree would not only affect that balance, it has the potential to create a negative impact on readiness as well. Nothing is more debilitating to the deploying unit than a soldier unsuccessfully coping with personal or family problems.

Civilian providers are predicted to offer slightly more care at a slightly higher cost. There is no benefit to replacing military clinicians with them.

Further study of these specialties, using the HSEMM is also recommended. The MHS remains in a state of flux as different TRICARE contracts are evolving across the TRICARE regions. Running the HSEMM model again using 1997 data when it becomes available may provide very different results.

The savings and manpower quantities reflected in this project are only a small portion of the overall MHS budget and strength. It is important that we begin to look at all the diverse specialties that comprise the AMEDD individually. We need to understand what they "bring to the table". Many providers not only perform an important war time mission in the care of soldiers but also provide a cost effective, peace time health benefit that we must be able to convey clearly to policy makers as they continue to redefine our forces. It is this cost effective, health benefit that adds depth to the value of our AMEDD forces. It is the opportunity to provide peace time care that ensures we have a ready health care force. The interaction of these two missions is what makes Army Military Medicine the envy of the world.

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Tab 1
HSEMM Status Quo and Results

Results

Audiology	DMISID	LOCATION	ALTERNATIVE #1			ALTERNATIVE #2			ALTERNATIVE #3		
			STATUS QU MILITARY TO CIVILIAN			MILITARY TO CONTRACT			MILITARY TO TRICARE		
			EST. COST	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS
			(\$10,997)	(\$10,997)	\$0	(\$10,997)	\$0	(\$10,997)	\$0	(\$10,997)	\$0
	1	REDSTONE	\$340,044	\$256,489	\$83,554	\$777,150	(\$437,106)	\$178,457	\$161,587	\$178,457	\$161,587
	3	RUCKER	\$246,069	\$158,175	\$87,894	\$705,876	(\$459,807)	\$76,090	\$169,979	\$76,090	\$169,979
	5	WAINWRIGHT	\$9,498	\$9,498	\$0	\$9,498	\$0	\$9,498	\$0	\$9,498	\$0
	8	HUACHUCA	\$549,541	\$461,222	\$88,319	\$1,011,574	(\$462,033)	\$378,740	\$170,802	\$378,740	\$170,802
	32	CARSON	\$3,838,459	\$3,606,430	\$232,029	\$5,052,296	(\$1,213,837)	\$3,389,734	\$448,725	\$3,389,734	\$448,725
	37	WRAMC	\$544,627	\$544,627	(\$0)	\$544,627	\$0	\$544,627	\$0	\$544,627	\$0
	47	DDEAMC	\$274,806	\$253,449	\$21,357	\$386,531	(\$111,725)	\$233,504	\$41,302	\$233,504	\$41,302
	48	BENNING	\$160,607	\$160,607	\$0	\$160,607	\$0	\$160,607	\$0	\$160,607	\$0
	49	STEWART	\$1,358,545	\$1,150,425	\$208,120	\$2,447,304	(\$1,088,759)	\$956,058	\$402,486	\$956,058	\$402,486
	52	TAMC	\$247,088	\$161,236	\$85,852	\$696,212	(\$449,124)	\$81,058	\$166,030	\$81,058	\$166,030
	57	RILEY	(\$18,351)	(\$18,351)	(\$0)	(\$18,351)	\$0	(\$18,351)	\$0	(\$18,351)	\$0
	58	LEAVENWORTH	\$560,310	\$470,119	\$90,191	\$1,032,136	(\$471,825)	\$385,889	\$174,422	\$385,889	\$174,422
	60	CAMPBELL	\$547,284	\$458,028	\$89,255	\$1,014,212	(\$466,929)	\$374,672	\$172,612	\$374,672	\$172,612
	61	KNOX	\$413,506	\$328,505	\$85,001	\$858,179	(\$444,673)	\$249,122	\$164,384	\$249,122	\$164,384
	64	POLK	\$416,364	\$316,303	\$100,061	\$939,823	(\$523,459)	\$222,854	\$193,509	\$222,854	\$193,509
	69	MEADE	\$490,645	\$490,645	\$0	\$490,645	\$0	\$490,645	\$0	\$490,645	\$0
	75	L. WOOD	\$259,991	\$258,629	\$1,361	\$267,112	(\$7,122)	\$257,358	\$2,633	\$257,358	\$2,633
	86	WEST PT	\$614,248	\$514,357	\$99,891	\$1,136,817	(\$522,569)	\$421,068	\$193,180	\$421,068	\$193,180
	89	BRAGG	\$455,179	\$344,056	\$111,122	\$1,036,503	(\$581,324)	\$240,278	\$214,901	\$240,278	\$214,901
	98	SILL	\$322,649	\$322,649	\$0	\$322,649	\$0	\$322,649	\$0	\$322,649	\$0
	105	JACKSON	\$691,741	\$600,869	\$90,872	\$1,167,127	(\$475,386)	\$516,003	\$175,738	\$516,003	\$175,738
	108	WBAMC	\$677,954	\$589,464	\$88,489	\$1,140,877	(\$462,923)	\$506,823	\$171,131	\$506,823	\$171,131
	109	BAMC	\$853,313	\$678,547	\$174,766	\$1,767,586	(\$914,273)	\$515,330	\$337,983	\$515,330	\$337,983
	110	HOOD	\$120,439	\$120,439	(\$0)	\$120,439	(\$0)	\$120,439	\$0	\$120,439	\$0
	121	EUSTIS	\$98,901	\$98,901	(\$0)	\$98,901	(\$0)	\$98,901	\$0	\$98,901	\$0
	122	LEE	\$1,131,010	\$1,101,059	\$29,950	\$1,287,691	(\$156,682)	\$1,073,089	\$57,921	\$1,073,089	\$57,921
	123	BELVOIR	\$878,179	\$644,534	\$233,646	\$2,100,474	(\$1,222,295)	\$426,328	\$451,851	\$426,328	\$451,851
	125	MAMC	\$408	\$408	(\$0)	\$408	(\$0)	\$408	\$0	\$408	\$0
	131	IRWIN									
		TOTAL SAVINGS	\$250,488	\$2,001,729			(\$10,471,850)		\$3,871,174		\$3,871,174
		95% CONFIDENCE									

[illegible]

Age	Age H	Age N	Age T	Females	Females H	Females N	Females T	Males	Males H	Males N	Males T
AGE H	-38.3639	33.960036	-7.12847	0.279100	-11.7143	35.01538	-11.7143	35.01538	-11.7143	35.01538	35.01538
AGE N	-10.7701	33.260373	-42.83368	0.751007	-42.83368	61.07853	-42.83368	61.07853	-42.83368	61.07853	61.07853
AGE T	-10.7701	33.260373	-42.83368	0.751007	-42.83368	61.07853	-42.83368	61.07853	-42.83368	61.07853	61.07853
FEMALE H	-10.7701	33.260373	-42.83368	0.751007	-42.83368	61.07853	-42.83368	61.07853	-42.83368	61.07853	61.07853
FEMALE N	-10.7701	33.260373	-42.83368	0.751007	-42.83368	61.07853	-42.83368	61.07853	-42.83368	61.07853	61.07853
FEMALE T	-10.7701	33.260373	-42.83368	0.751007	-42.83368	61.07853	-42.83368	61.07853	-42.83368	61.07853	61.07853
MALE H	-10.7701	33.260373	-42.83368	0.751007	-42.83368	61.07853	-42.83368	61.07853	-42.83368	61.07853	61.07853
MALE N	-10.7701	33.260373	-42.83368	0.751007	-42.83368	61.07853	-42.83368	61.07853	-42.83368	61.07853	61.07853
MALE T	-10.7701	33.260373	-42.83368	0.751007	-42.83368	61.07853	-42.83368	61.07853	-42.83368	61.07853	61.07853

Results

OPTOMETRY	DMISID LOCATION	ALTERNATIVE #1			ALTERNATIVE #2			ALTERNATIVE #3		
		STATUS QU MILITARY TO CIVILIAN			MILITARY TO CONTRAC			MILITARY TO TRICARE		
		EST. COST	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS
	1 REDSTONE	\$595,074	\$600,230	(\$5,156)	\$581,690	\$13,384	\$561,622	\$33,452		
	3 RUCKER	\$321,268	\$326,334	(\$5,066)	\$308,118	\$13,150	\$288,400	\$32,868		
	5 WAINWRIGHT	\$589,016	\$598,441	(\$9,425)	\$564,551	\$24,465	\$527,866	\$61,150		
	8 HUACHUCA	\$504,922	\$511,791	(\$6,868)	\$487,094	\$17,829	\$460,360	\$44,562		
	32 CARSON	\$569,105	\$575,110	(\$6,005)	\$553,517	\$15,588	\$530,144	\$38,961		
	37 WRAMC	\$883,398	\$905,602	(\$22,204)	\$825,763	\$57,635	\$739,340	\$144,058		
	47 DDEAMC	\$776,335	\$793,563	(\$17,228)	\$731,616	\$44,719	\$664,561	\$111,775		
	48 BENNING	\$792,675	\$806,198	(\$13,523)	\$757,571	\$35,103	\$704,935	\$87,739		
	49 STEWART	\$540,632	\$549,440	(\$8,808)	\$517,768	\$22,864	\$483,483	\$57,149		
	52 TAMC	\$1,361,047	\$1,381,320	(\$20,273)	\$1,308,423	\$52,624	\$1,229,515	\$131,532		
	57 RILEY	\$719,602	\$729,630	(\$10,028)	\$693,574	\$26,029	\$654,544	\$65,058		
	58 LEAVENWORTH	\$520,930	\$523,956	(\$3,026)	\$513,074	\$7,855	\$501,295	\$19,634		
	60 CAMPBELL	\$934,184	\$954,381	(\$20,197)	\$881,757	\$52,427	\$803,144	\$131,040		
	61 KNOX	\$633,880	\$648,077	(\$14,197)	\$597,028	\$36,852	\$541,771	\$92,109		
	64 POLK	\$412,112	\$416,727	(\$4,615)	\$400,132	\$11,980	\$382,168	\$29,944		
	69 MEADE	\$1,055,438	\$1,070,399	(\$14,961)	\$1,016,605	\$38,834	\$958,374	\$97,064		
	75 L. WOOD	\$933,564	\$949,587	(\$16,023)	\$891,972	\$41,592	\$829,606	\$103,958		
	86 WEST PT	\$578,594	\$593,678	(\$15,084)	\$539,440	\$39,154	\$480,730	\$97,864		
	89 BRAGG	\$878,883	\$898,990	(\$20,107)	\$826,689	\$52,193	\$748,427	\$130,455		
	98 SILL	\$759,188	\$773,376	(\$14,187)	\$722,361	\$36,827	\$667,140	\$92,048		
	105 JACKSON	\$910,843	\$925,040	(\$14,197)	\$873,991	\$36,852	\$818,733	\$92,109		
	108 WBAMC	\$673,262	\$682,237	(\$8,974)	\$649,967	\$23,295	\$615,036	\$58,226		
	109 BAMC	\$728,796	\$741,385	(\$12,589)	\$696,118	\$32,678	\$647,119	\$81,677		
	110 HOOD	\$932,567	\$955,710	(\$23,143)	\$872,494	\$60,073	\$782,416	\$150,151		
	121 EUSTIS	\$667,456	\$672,613	(\$5,156)	\$654,073	\$13,384	\$634,004	\$33,452		
	122 LEE	\$332,303	\$335,690	(\$3,387)	\$323,512	\$8,791	\$310,330	\$21,973		
	123 BELVOIR	\$1,488,567	\$1,508,679	(\$20,112)	\$1,436,362	\$52,205	\$1,358,081	\$130,486		
	125 MAMC	\$738,834	\$755,204	(\$16,369)	\$696,344	\$42,491	\$632,630	\$106,204		
	131 IRWIN	\$382,152	\$388,233	(\$6,081)	\$366,368	\$15,785	\$342,699	\$39,454		
TOTAL SAVINGS				(\$356,992)		\$926,658		\$2,316,155		
95% CONFIDENCE		307840								

CHAMPUS VOLUME MATRIX

[illegible]

Coefficient	banded Er			moder Er			offmod Er		
	1 SMI	P-value	Lower 95% Upper 95%	1 SMI	P-value	Lower 95% Upper 95%	1 SMI	P-value	Lower 95% Upper 95%
Constant	31.940	0.0000	29.0646	33.665	0.0000	30.7896	35.4887	0.0000	32.6131
band	0.0000	0.9854	-0.0000	0.0000	0.9854	-0.0000	0.0000	0.9854	-0.0000
mod	0.0000	0.9854	-0.0000	0.0000	0.9854	-0.0000	0.0000	0.9854	-0.0000
offmod	0.0000	0.9854	-0.0000	0.0000	0.9854	-0.0000	0.0000	0.9854	-0.0000

[illegible][illegible][illegible]

Coefficient	low-risk			medium-risk			high-risk		
	low-risk	medium-risk	high-risk	low-risk	medium-risk	high-risk	low-risk	medium-risk	high-risk
Intercept	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Age	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gender	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Marital status	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Education	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Income	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Health status	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Chronic conditions	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Medication use	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare utilization	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare costs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare quality	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare access	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare satisfaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare equity	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare efficiency	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare effectiveness	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare safety	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare patient experience	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare provider satisfaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare system performance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare policy impact	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare research findings	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare innovation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare leadership	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare governance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare accountability	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare transparency	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare communication	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare collaboration	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare partnership	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare network	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare integration	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare coordination	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Healthcare continuity	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Model E	-29.007	10.70167	11.80036	0.00135
Model F	-21.0047	3.8107	4.251542	
Model G	-21.0047	3.8107	4.251542	
Model H	-21.0047	3.8107	4.251542	
Model I	-21.0047	3.8107	4.251542	
Model J	-21.0047	3.8107	4.251542	
Model K	-21.0047	3.8107	4.251542	
Model L	-21.0047	3.8107	4.251542	
Model M	-21.0047	3.8107	4.251542	
Model N	-21.0047	3.8107	4.251542	
Model O	-21.0047	3.8107	4.251542	
Model P	-21.0047	3.8107	4.251542	
Model Q	-21.0047	3.8107	4.251542	
Model R	-21.0047	3.8107	4.251542	
Model S	-21.0047	3.8107	4.251542	
Model T	-21.0047	3.8107	4.251542	
Model U	-21.0047	3.8107	4.251542	
Model V	-21.0047	3.8107	4.251542	
Model W	-21.0047	3.8107	4.251542	
Model X	-21.0047	3.8107	4.251542	
Model Y	-21.0047	3.8107	4.251542	
Model Z	-21.0047	3.8107	4.251542	
Model AA	-21.0047	3.8107	4.251542	
Model AB	-21.0047	3.8107	4.251542	
Model AC	-21.0047	3.8107	4.251542	
Model AD	-21.0047	3.8107	4.251542	
Model AE	-21.0047	3.8107	4.251542	
Model AF	-21.0047	3.8107	4.251542	
Model AG	-21.0047	3.8107	4.251542	
Model AH	-21.0047	3.8107	4.251542	
Model AI	-21.0047	3.8107	4.251542	
Model AJ	-21.0047	3.8107	4.251542	
Model AK	-21.0047	3.8107	4.251542	
Model AL	-21.0047	3.8107	4.251542	
Model AM	-21.0047	3.8107	4.251542	
Model AN	-21.0047	3.8107	4.251542	
Model AO	-21.0047	3.8107	4.251542	
Model AP	-21.0047	3.8107	4.251542	
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Model AW	-21.0047	3.8107	4.251542	
Model AX	-21.0047	3.8107	4.251542	
Model AY	-21.0047	3.8107	4.251542	
Model AZ	-21.0047	3.8107	4.251542	
Model BA	-21.0047	3.8107	4.251542	
Model BB	-21.0047	3.8107	4.251542	
Model BC	-21.0047	3.8107	4.251542	
Model BD	-21.0047	3.8107	4.251542	
Model BE	-21.0047	3.8107	4.251542	
Model BF	-21.0047	3.8107	4.251542	
Model BG	-21.0047	3.8107	4.251542	
Model BH	-21.0047	3.8107	4.251542	
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Model BK	-21.0047	3.8107	4.251542	
Model BL	-21.0047	3.8107	4.251542	
Model BM	-21.0047	3.8107	4.251542	
Model BN	-21.0047	3.8107	4.251542	
Model BO	-21.0047	3.8107	4.251542	
Model BP	-21.0047	3.8107	4.251542	
Model BQ	-21.0047	3.8107	4.251542	
Model BR	-21.0047	3.8107	4.251542	
Model BS	-21.0047	3.8107	4.251542	
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Model BU	-21.0047	3.8107	4.251542	
Model BV	-21.0047	3.8107	4.251542	
Model BW	-21.0047	3.8107	4.251542	
Model BX	-21.0047	3.8107	4.251542	
Model BY	-21.0047	3.8107	4.251542	
Model BZ	-21.0047	3.8107	4.251542	
Model CA	-21.0047	3.8107	4.251542	
Model CB	-21.0047	3.8107	4.251542	
Model CC	-21.0047	3.8107	4.251542	
Model CD	-21.0047	3.8107	4.251542	
Model CE	-21.0047	3.8107	4.251542	
Model CF	-21.0047	3.8107	4.251542	
Model CG	-21.0047	3.8107	4.251542	
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Model CI	-21.0047	3.8107	4.251542	
Model CJ	-21.0047	3.8107	4.251542	
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Model CN	-21.0047	3.8107	4.251542	
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Model CP	-21.0047	3.8107	4.251542	
Model CQ	-21.0047	3.8107	4.251542	
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Model CV	-21.0047	3.8107	4.251542	
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Model CX	-21.0047	3.8107	4.251542	
Model CY	-21.0047	3.8107	4.251542	
Model CZ	-21.0047	3.8107	4.251542	
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Model DB	-21.0047	3.8107	4.251542	
Model DC	-21.0047	3.8107	4.251542	
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Model DJ	-21.0047	3.8107	4.251542	
Model DK	-21.0047	3.8107	4.251542	
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Model DM	-21.0047	3.8107	4.251542	
Model DN	-21.0047	3.8107	4.251542	
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Model DU	-21.0047	3.8107	4.251542	
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Model DW	-21.0047	3.8107	4.251542	
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Model DY	-21.0047	3.8107	4.251542	
Model DZ	-21.0047	3.8107	4.251542	
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Model EB	-21.0047	3.8107	4.251542	
Model EC	-21.0047	3.8107	4.251542	
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Model EF	-21.0047	3.8107	4.251542	
Model EG	-21.0047	3.8107	4.251542	
Model EH	-21.0047	3.8107	4.251542	
Model EI	-21.0047	3.8107	4.251542	
Model EJ	-21.0047	3.8107	4.251542	
Model EK	-21.0047	3.8107	4.251542	
Model EL	-21.0047	3.8107	4.251542	
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Model EN	-21.0047	3.8107	4.251542	
Model EO	-21.0047	3.8107	4.251542	
Model EP	-21.0047	3.8107	4.251542	
Model EQ	-21.0047	3.8107	4.251542	
Model ER	-21.0047	3.8107	4.251542	
Model ES	-21.0047	3.8107	4.251542	
Model ET	-21.0047	3.8107	4.251542	
Model EU	-21.0047	3.8107	4.251542	
Model EV	-21.0047	3.8107	4.251542	
Model EW	-21.0047	3.8107	4.251542	
Model EX	-21.0047	3.8107	4.251542	
Model EY	-21.0047	3.8107	4.251542	
Model EZ	-21.0047	3.8107	4.251542	
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Model FB	-21.0047	3.8107	4.251542	
Model FC	-21.0047	3.8107	4.251542	
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Model FG	-21.0047	3.8107	4.251542	
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Model FJ	-21.0047	3.8107	4.251542	
Model FK	-21.0047	3.8107	4.251542	
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Model FN	-21.0047	3.8107	4.251542	
Model FO	-21.0047	3.8107	4.251542	
Model FP	-21.0047	3.8107	4.251542	
Model FQ	-21.0047	3.8107	4.251542	
Model FR	-21.0047	3.8107	4.251542	
Model FS	-21.0047	3.8107	4.251542	
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Model FY	-21.0047	3.8107	4.251542	
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Model GG	-21.0047	3.8107	4.251542	
Model GH	-21.0047	3.8107	4.251542	
Model GI	-21.0047	3.8107	4.251542	
Model GJ	-21.0047	3.8107	4.251542	
Model GK	-21.0047	3.8107	4.251542	
Model GL	-21.0047	3.8107	4.251542	
Model GM	-21.0047	3.8107	4.251542	
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Model GR	-21.0047	3.8107	4.251542	
Model GS	-21.0047	3.8107	4.251542	
Model GT	-21.0047	3.8107	4.251542	
Model GU	-21.0047	3.8107	4.251542	
Model GV	-21.0047	3.8107	4.251542	
Model GW	-21.0047	3.8107	4.251542	
Model GX	-21.0047	3.8107	4.251542	
Model GY	-21.0047	3.8107	4.251542	
Model GZ	-21.0047	3.8107	4.251542	
Model HA	-21.0047	3.8107	4.251542	
Model HB	-21.0047	3.8107	4.251542	
Model HC	-21.0047	3.8107	4.251542	
Model HD	-21.0047	3.8107	4.251542	
Model HE	-21.0047	3.8107	4.251542	
Model HF	-21.0047	3.8107	4.251542	
Model HG	-21.0047	3.8107	4.251542	
Model HH	-21.0047	3.8107	4.251542	
Model HI	-21.0047	3.8107	4.251542	
Model HJ	-21.0047	3.8107	4.251542	
Model HK	-21.0047	3.8107	4.251542	
Model HL	-21.0047	3.8107	4.251542	
Model HM	-21.0047	3.8107	4.251542	
Model HN	-21.0047	3.8107	4.251542	
Model HO	-21.0047	3.8107	4.251542	
Model HP	-21.0047	3.8107	4.251542	
Model HQ	-21.0047	3.8107	4.251542	
Model HR	-21.0047	3.8107	4.251542	
Model HS	-21.0047	3.8107	4.251542	
Model HT	-21.0047	3.8107	4.251542	
Model HU	-21.0047	3.8107	4.251542	
Model HV	-21.0047	3.8107	4.251542	
Model HW	-21.0047	3.8107	4.251542	
Model HX	-21.0047	3.8107	4.251542	
Model HY	-21.0047	3.8107	4.251542	
Model HZ	-21.0047	3.8107	4.251542	
Model IA	-21.0047	3.8107	4.251542	
Model IB	-21.0047	3.8107	4.251542	
Model IC	-21.0047	3.8107	4.251542	
Model ID	-21.0047	3.8107	4.251542	
Model IE	-21.0047	3.8107	4.251542	
Model IF	-21.0047	3.8107	4.251542	
Model IG	-21.0047	3.8107	4.251542	
Model IH	-21.0047	3.8107	4.251542	
Model II	-21.0047	3.8107	4.251542	
Model IJ	-21.0047	3.8107	4.251542	
Model IK	-21.0047	3.8107	4.251542	
Model IL	-21.0047	3.8107	4.251542	
Model IM	-21			

Country	Year	Value
China	2010	0.0000
China	2011	0.0000
China	2012	0.0000
China	2013	0.0000
China	2014	0.0000
China	2015	0.0000
China	2016	0.0000
China	2017	0.0000
China	2018	0.0000
China	2019	0.0000
China	2020	0.0000
China	2021	0.0000
China	2022	0.0000
China	2023	0.0000
China	2024	0.0000
China	2025	0.0000
China	2026	0.0000
China	2027	0.0000
China	2028	0.0000
China	2029	0.0000
China	2030	0.0000
China	2031	0.0000
China	2032	0.0000
China	2033	0.0000
China	2034	0.0000
China	2035	0.0000
China	2036	0.0000
China	2037	0.0000
China	2038	0.0000
China	2039	0.0000
China	2040	0.0000
China	2041	0.0000
China	2042	0.0000
China	2043	0.0000
China	2044	0.0000
China	2045	0.0000
China	2046	0.0000
China	2047	0.0000
China	2048	0.0000
China	2049	0.0000
China	2050	0.0000
China	2051	0.0000
China	2052	0.0000
China	2053	0.0000
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China	2055	0.0000
China	2056	0.0000
China	2057	0.0000
China	2058	0.0000
China	2059	0.0000
China	2060	0.0000
China	2061	0.0000
China	2062	0.0000
China	2063	0.0000
China	2064	0.0000
China	2065	0.0000
China	2066	0.0000
China	2067	0.0000
China	2068	0.0000
China	2069	0.0000
China	2070	0.0000
China	2071	0.0000
China	2072	0.0000
China	2073	0.0000
China	2074	0.0000
China	2075	0.0000
China	2076	0.0000
China	2077	0.0000
China	2078	0.0000
China	2079	0.0000
China	2080	0.0000
China	2081	0.0000
China	2082	0.0000
China	2083	0.0000
China	2084	0.0000
China	2085	0.0000
China	2086	0.0000
China	2087	0.0000
China	2088	0.0000
China	2089	0.0000
China	2090	0.0000
China	2091	0.0000
China	2092	0.0000
China	2093	0.0000
China	2094	0.0000
China	2095	0.0000
China	2096	0.0000
China	2097	0.0000
China	2098	0.0000
China	2099	0.0000
China	2100	0.0000

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Results

Social Work	DMISID LOCATION	ALTERNATIVE #1		ALTERNATIVE #2		ALTERNATIVE #3	
		STATUS QU MILITARY TO CIVILIAN		MILITARY TO CONTRAC		MILITARY TO TRICARE	
		EST. COST	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS	EST. COST SAVINGS
	1 REDSTONE	\$430,059	\$430,059	\$0	\$430,059	\$0	\$0
	3 RUCKER	\$382,144	\$382,144	\$0	\$382,144	\$0	\$0
	5 WAINWRIGHT	\$892,684	\$1,025,087	(\$132,402)	\$785,184	\$107,500	\$17,296
	8 HUACHUCA	\$697,691	\$732,127	(\$34,436)	\$669,731	\$27,959	\$4,498
	32 CARSON	\$1,112,707	\$1,169,549	(\$56,843)	\$1,066,555	\$46,152	\$7,425
	37 WRAMC	\$3,237,505	\$3,499,864	(\$262,360)	\$3,024,489	\$213,015	\$34,272
	47 DDEAMC	\$911,505	\$1,072,209	(\$160,704)	\$781,026	\$130,479	\$20,993
	48 BENNING	\$996,625	\$998,945	(\$2,320)	\$994,741	\$1,884	\$303
	49 STEWART	\$1,152,527	\$1,249,203	(\$96,676)	\$1,074,033	\$78,494	\$12,629
	52 TAMC	\$2,223,755	\$2,327,238	(\$103,483)	\$2,139,735	\$84,020	\$13,518
	57 RILEY	\$1,086,605	\$1,167,472	(\$80,867)	\$1,020,947	\$65,658	\$10,564
	58 LEAVENWORTH	\$544,859	\$574,774	(\$29,915)	\$520,570	\$24,289	\$3,908
	60 CAMPBELL	\$1,209,160	\$1,315,093	(\$105,933)	\$1,123,151	\$86,009	\$13,838
	61 KNOX	\$1,036,722	\$1,079,374	(\$42,652)	\$1,002,092	\$34,630	\$5,572
	64 POLK	\$851,635	\$978,023	(\$126,387)	\$749,019	\$102,616	\$16,510
	69 MEADE	\$1,690,100	\$1,801,386	(\$111,285)	\$1,599,745	\$90,355	\$14,537
	75 L. WOOD	\$635,897	\$677,428	(\$41,532)	\$602,176	\$33,720	\$5,425
	86 WEST PT	\$379,865	\$379,865	\$0	\$379,865	\$0	\$0
	89 BRAGG	\$740,363	\$740,363	\$0	\$740,363	\$0	\$0
	98 SILL	\$784,834	\$878,443	(\$93,609)	\$708,831	\$76,003	\$12,228
	105 JACKSON	\$782,866	\$867,015	(\$84,149)	\$714,544	\$68,322	\$10,992
	108 WBAMC	\$1,321,848	\$1,367,487	(\$45,639)	\$1,284,792	\$37,056	\$5,962
	109 BAMC	\$1,718,969	\$1,927,678	(\$208,709)	\$1,549,514	\$169,455	\$27,264
	110 HOOD	\$2,128,645	\$2,267,147	(\$138,502)	\$2,016,193	\$112,452	\$18,093
	121 EUSTIS	\$656,772	\$656,772	\$0	\$656,772	\$0	\$0
	122 LEE	\$488,315	\$488,315	\$0	\$488,315	\$0	\$0
	123 BELVOIR	\$1,011,053	\$1,058,853	(\$47,800)	\$972,242	\$38,810	\$6,244
	125 MAMC	\$2,507,996	\$2,617,121	(\$109,124)	\$2,419,396	\$88,600	\$14,255
	131 IRWIN	\$294,186	\$294,186	\$0	\$294,186	\$0	\$0
TOTAL SAVINGS				(\$2,115,330)	\$1,717,479		\$276,327
95% CONFIDENCE		\$419,757					

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	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.080(0.07)	1500(0.08)	0.000000	0.000000		
Residual	0.000(0.00)	1546(0.06)				
Total	0.080(0.07)	3046(0.14)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
Observed	20	20				

	<i>R</i>	<i>S</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>adjusted F</i>
Regression	0.000(0.00)	1546(0.06)				
Residual	0.000(0.00)	1546(0.06)				
Total	0.000(0.00)	3092(0.15)				
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[illegible]

